

**BIOPOTENTIAL SIGNAL SOURCE SEPARATION
USING SOURCE IMPEDANCES**

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ABSTRACT OF THE DISCLOSURE

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Cardiac methods and devices that separate signals using at least two composite signals acquired at least at two input impedances. A target source impedance may be selected, and a cardiac signal may be separated from composite signals using the selected target source impedance. Medical systems include a cardiac device having a housing that provides amplification circuitry configured to have a first amplifier input impedance and a second amplifier input impedance, such as using two separate circuits or switching between two input impedances. One or more electrode assemblies are coupled to the amplification circuitry. A signal processor is provided in the housing configured to separate a source signal using a first composite signal detected at the first input impedance and a second composite signal detected at the second input impedance. The phase response of the first input amplifier circuit is about equal to that of the second input amplifier circuit.

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